

Serial No. 10/663,949
Atty. Doc. No. 2003P07614US

Amendment to the Claims:

Please amend the claims as shown. Applicants reserve the right to pursue any of the original unamended claims presented in this applications at a later date in one or more continuing applications.

1. (currently amended) A tubular solid oxide fuel cell, comprising:
an air electrode;
an electrolyte formed on at least a portion of the air electrode; and
a ~~plasma-sprayed~~ ceramic-metal fuel electrode having a microstructure characterized by accumulated molten particle splats formed on at least a portion of the electrolyte.
2. (original) The fuel cell of claim 1, wherein the air electrode composition comprises lanthanum manganite.
3. (original) The fuel cell of claim 1, wherein the electrolyte composition comprises yttria-stabilized zirconia.
4. (original) The fuel cell of claim 1, wherein the ceramic-metal fuel electrode composition comprises nickel and zirconia.
5. (previously presented) The fuel cell of claim 4, wherein the fuel electrode composition comprises at least 60% nickel and at least 15% zirconia.
6. (previously presented) The fuel cell of claim 5, wherein the fuel electrode composition comprises at least 70% nickel and at least 20% zirconia.

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7. (previously presented) The fuel cell of claim 4, wherein the fuel electrode composition comprises no more than 85% nickel and no more than 40% zirconia.

8. (previously presented) The fuel cell of claim 7, wherein the fuel electrode composition comprises no more than 80% nickel and no more than 30% zirconia.

9. (original) The fuel cell of claim 4, wherein a nickel graphite powder is used to obtain at least a portion of the nickel.

10. (previously presented) The fuel cell of claim 9, wherein the nickel graphite powder comprises at least 60% nickel and at least 15% graphite.

11. (previously presented) The fuel cell of claim 10, wherein the nickel graphite powder comprises at least 70% nickel and at least 20% graphite.

12. (original) The fuel cell of claim 4, wherein a yttria stabilized zirconia powder is used to obtain at least a portion of the zirconia.

13. (previously presented) The fuel cell of claim 12, wherein the yttria stabilized zirconia powder comprises at least 7 mole percent of yttria.

14. (original) The fuel cell of claim 13, wherein the yttria stabilized zirconia powder comprises at least 8 mole percent of yttria.

15. (original) The fuel cell of claim 1, wherein the electrolyte composition comprises a solid oxide comprising a rare-earth element stabilized zirconia.

16. (currently amended) The fuel cell of claim 1, wherein the tubular solid oxide fuel cell further comprises an interconnect that interconnects a plurality of tubular solid oxide fuel cells.

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17. (currently amended) The fuel cell of claim 16, wherein the interconnected tubular solid oxide fuel cells form a power generation system.

18. (original) The fuel cell of claim 1, wherein the fuel cell further comprises a precursor layer formed between the electrolyte and the fuel electrode, the precursor layer composition comprising zirconia and having a thickness of about 5 μ m to about 20 μ m.

19. (withdrawn) A method of manufacturing a fuel cell, comprising:

providing an air electrode;

arranging an electrolyte adjacent the air electrode; and

plasma spraying a ceramic-metal fuel electrode powder onto at least a portion of the electrolyte with a plasma spray gun.

20. (withdrawn) The method of claim 17, wherein the powder has a gun feed rate of about 6 grams per minute to about 30 grams per minute, and a distance of about less than 4 inches between the gun and the electrolyte.

21. (withdrawn) The method of claim 17, wherein the spray gun has a discharge voltage of about 30-60 volts, a current of about 400-900 amperes, and a power of about 10-40 kilowatts.

22. (withdrawn) The method of claim 19, wherein the spray gun moves at a rate of about 400 mm/sec to about 700 mm/sec and the electrolyte makes about 2-40 revolutions around the spray gun to form the fuel electrode.

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